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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,156	09/25/2003	Mingjie Ke	020569-03500	7041

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EXAMINER

FULLER, BRYAN A

ART UNIT	PAPER NUMBER
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3676

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/671,156

Applicant(s)

KE ET AL.

Examiner

Bryan A. Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 26 and 36-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 27-35 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☒ Claim(s) 1-44 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/25/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I in the reply filed on 7/27/05 is acknowledged. The traversal is on the ground(s) that a single inventive concept runs through the claims of both Groups of claims. This is not found persuasive because the application claims two distinct inventions. One invention is a product and the other is a method of using that product.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Objections***

1. Claim 8 is objected to for containing an improper MARKUSH group. This objection can be overcome by replacing the words "is" and "or" and replacing them with the phrases "is selected from the group consisting of" and "and," respectively.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

3. Claims 1 – 5, 8 – 12, 15, and 18 - 21 rejected under 35 U.S.C. 102(b) as being anticipated by Dawson et al (5,465,792).

With respect to claim 1: Dawson et al teaches in column 1, line 60 – column 3, line 5 a method for inhibiting or controlling inorganic scale formations in a subterranean

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formation or in a wellbore, comprising pumping downhole a copolymer comprising: quaternary ammonium salt; and an acrylamide unit.

With respect to claims 2 - 5: Dawson et al teaches in column 2, line 54 – column 3, line 5 a method wherein the quaternary ammonium salt is dimethyldiallylammonium chloride.

With respect to claims 8 - 10: Dawson et al teaches in column 2, lines 62 – 65 a method wherein the acrylamide unit is acrylamide.

With respect to claim 11: Dawson et al teaches in column 6, lines 16 – 20 a method wherein the copolymer is pumped downhole as a component of a carrier fluid.

With respect to claim 12: Dawson et al teaches in column 3, lines 48 - 64 a method wherein the copolymer is pumped downhole as part of a brine.

With respect to claim 15: Dawson et al teaches in column 3, lines 48 - 64 a method wherein the copolymer is pumped downhole as a component of an acidizing fluid.

With respect to claims 18 and 19: Dawson et al teaches in column 5, lines 2 - 13 a method wherein the molar ratio of acrylamide unit:diallyldimethylammonium salt is from about 1:1 to about 3:1.

With respect to claims 20 and 21: Dawson et al teaches in column 2, line 54 – column 3, line 5 a method wherein the copolymer further comprises an acrylic acid unit. Additionally, the reference teaches a method wherein the acrylic acid unit is acrylic acid, (meth)acrylic acid or a salt thereof.

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4. Claims 1 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Aften et al (5,432,530).

With respect to claim 1: Aften et al teaches in column 1, line 41 – column 4, line 26 a method for inhibiting or controlling inorganic scale formations in a subterranean formation or in a wellbore, comprising pumping downhole a copolymer comprising: quaternary ammonium salt; and an acrylamide unit.

With respect to claim 14: Aften et al teaches in column 2, lines 41 - 55 a method wherein the copolymer is pumped downhole as a component of a fracturing fluid.

5. Claims 1, 17, and 23 – 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Weaver et al (4,532,052).

With respect to claim 1: Weaver et al teaches in column 12, line 3 – column 57, line 65 a method for inhibiting or controlling inorganic scale formations in a subterranean formation or in a wellbore, comprising pumping downhole a copolymer comprising: quaternary ammonium salt; and an acrylamide unit.

With respect to claim 17: Weaver et al teaches in column 6, lines 25 - 45 a method wherein the weight average molecular weight of the copolymer is between from about 500,000 to about 5,000,000.

With respect to claim 23: Weaver et al teaches in column 12, lines 13 – 20 a method wherein the copolymer is a block or random copolymer.

With respect to claims 24 and 25: Weaver et al teaches in column 12, line 3 – column 57, line 65 a method wherein the copolymer is a random or block copolymer

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composed of units of acrylamide and diallyldimethylammonium salt and, optionally, acrylic acid or a sodium salt thereof.

6. Claims 1 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Emmons et al (5,213,691).

With respect to claim 1: Emmons et al teaches in column 1, line 26 – column 4, line 6 a method for inhibiting or controlling inorganic scale formations in a subterranean formation or in a wellbore, comprising pumping downhole a copolymer comprising: quaternary ammonium salt; and an acrylamide unit.

With respect to claim 16: Emmons et al teaches in column 1, lines 26 – 30 a method wherein the inorganic scale formations are zinc sulfide or iron sulfide scale formations.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al in view of Brookey et al (6,123,159).

With respect to claim 13: Dawson et al teaches the features as previously claimed except for wherein the brine carrier fluid comprises contains calcium bromide, zinc bromide, calcium chloride, sodium bromide or a combination thereof. Brookey et al

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teaches in column 3, lines 43 - 51 a method wherein the brine carrier fluid comprises contains calcium bromide, zinc bromide, calcium chloride, sodium bromide or a combination thereof. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dawson et al's invention by using calcium bromide, zinc bromide, calcium chloride, sodium bromide or a combination thereof in the brine carrier fluid in view of Brookey et al. The motivation for this combination is that these are common salts used in brines.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al in view of Weaver et al.

With respect to claim 22: Dawson et al teaches the features as previously claimed except for wherein the weight average molecular weight of the copolymer is between from about 500,000 to about 5,000,000. Weaver et al teaches the features as previously claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dawson et al's invention by using the a copolymer where the average molecular weight of the copolymer is between from about 500,000 to about 5,000,000 in view of Weaver et al. The motivation for this combination is that copolymers at these molecular weights have unexpected stability and effectiveness.

10. Claims 27 – 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al in view of Emmons et al.

With respect to claims 27 – 29 and 31: Dawson et al teaches the features as previously claimed except for wherein the inorganic scale formations are zinc sulfide or

iron sulfide scale formations. Emmons et al teaches the features as previously claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dawson et al's invention by using the invention wherein the inorganic scale formations are zinc sulfide or iron sulfide scale formations in view of Emmons et al. The motivation for this combination is that iron and zinc sulfides are common inorganic scale formations.

11. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al and Emmons et al as applied to claim 27 above, and further in view of Aften et al.

With respect to claim 30: Dawson et al and Emmons et al teach the features as previously claimed except for wherein the copolymer is pumped downhole as a component of a fracturing fluid. Aften et al teaches the features as previously claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Dawson et al's and Emmons et al's invention by pumping a copolymer downhole as a component of a fracturing fluid in view of Aften et al. The motivation for this combination is that this invention is suitable as an additive for inhibiting clay swelling.

12. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al and Emmons et al as applied to claim 27 above, and further in view of Reeves, III et al (4,630,679).

With respect to claim 32: Dawson et al and Emmons et al teach the features as previously claimed except for wherein the copolymer is soluble in a brine having a density greater than or equal to 14.0 lb/gal. Reeves, III et al teaches in column 3, line



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65 – column 4, line 5 a method wherein the copolymer is soluble in a brine having a density greater than or equal to 14.0 lb/gal. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Dawson et al's and Emmons et al's invention by using a copolymer that is soluble in a brine having a density greater than or equal to 14.0 lb/gal in view of Reeves, III et al. The motivation for this combination is that this is a density range that general brines exhibit.

13. Claim 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al and Emmons et al view of Reeves, III et al.

With respect to claim 33: Dawson et al and Emmons et al teach the features as previously claimed except for wherein the copolymer is soluble in a brine having a density greater than or equal to 14.0 lb/gal. Reeves, III et al teaches in column 3, line 65 – column 4, line 5 a method wherein the copolymer is soluble in a brine having a density greater than or equal to 14.0 lb/gal. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Dawson et al's and Emmons et al's invention by using a copolymer that is soluble in a brine having a density greater than or equal to 14.0 lb/gal in view of Reeves, III et al. The motivation for this combination is that this is a density range that general brines exhibit.

14. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al, Emmons et al, and Reeves, III et al as applied to claim 33 above, and further in view of Weaver et al.

With respect to claim 34: Dawson et al, Emmons et al, and Reeves, III et al teach the features as previously claimed except for wherein the weight average molecular weight of the copolymer is between from about 500,000 to about 5,000,000. Weaver et al teaches the features as previously claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Dawson et al's, Emmons et al's, and Reeves, III et al's invention by using a copolymer wherein the weight average molecular weight of the copolymer is between from about 500,000 to about 5,000,000 in view of Weaver et al. The motivation for this combination is that copolymers at these molecular weights have unexpected stability and effectiveness.

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Blair et al (6,787,506) teaches a method of inhibiting or controlling inorganic scale formations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan A. Fuller whose telephone number is (571) 272-8119. The examiner can normally be reached on M - Th 7:30 - 5:00 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian E. Glessner can be reached on (571) 272-6843. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian E. Glessner  
Supervisory Patent Examiner  
Art Unit 3676

baf